

Notice of Allowability

Application No.

10/575,564

Examiner

Quyen P. Leung

Applicant(s)

TANAKA ET AL.

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 12-14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 20060412
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Quyen Leung/
Quyen Leung
Primary Patent Examiner
Group Art Unit 2874

REASONS FOR ALLOWANCE

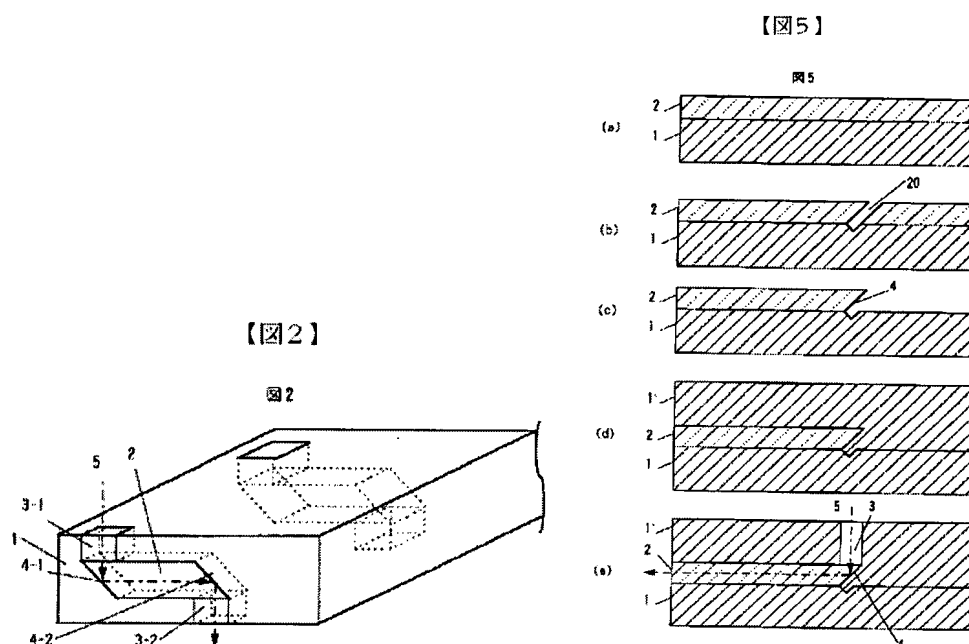
Claims 12-14 are pending. Claims 1-11 have been canceled by pre-amendment.

The following is an examiner's statement of reasons for allowance:

Claims 12-14 are allowed because the cited prior art, separately or in combination, fail to teach or fairly suggest the method comprising the combination of all other manufacturing steps along with:

simultaneously forming a multichannel core having a core perpendicular to the substrate and a core parallel with the substrate, which are monolithically formed, by selectively etching the core layer and the block, and conducting a filling with a cladding resin.

While Figure 2 of Karashima et al (JP 2000-193838) illustrates an optical waveguide device



including core parallel and perpendicular sections, figures 5d and 5e shows that the core perpendicular and core parallel sections were not monolithically formed, but rather formed in two steps. Applicants of the instant applicant discussed in the background of the invention that such a formation results in light reflection and scattering at a boundary between the core and the hollow portion, and thereby loss increases. Further, the reference fails to show first and second temporary substrates and a sacrificial layer being formed and removed.

Eventhough Glebov et al (2005/0201707) teaches an optical waveguide structure (figure 3) having vertical and horizontal core sections and the structure was formed by using and subsequently removing sacrificial temporary substrate (see figures 4a-4d, 5a-5d), the reference does not teach monolithically forming core vertical and horizontal sections or simultaneously forming a multichannel core. Instead, the horizontal section was first formed and then the vertical section. Glebov et al further lacks forming a V-groove or attaching and subsequently removing a second temporary substrate.

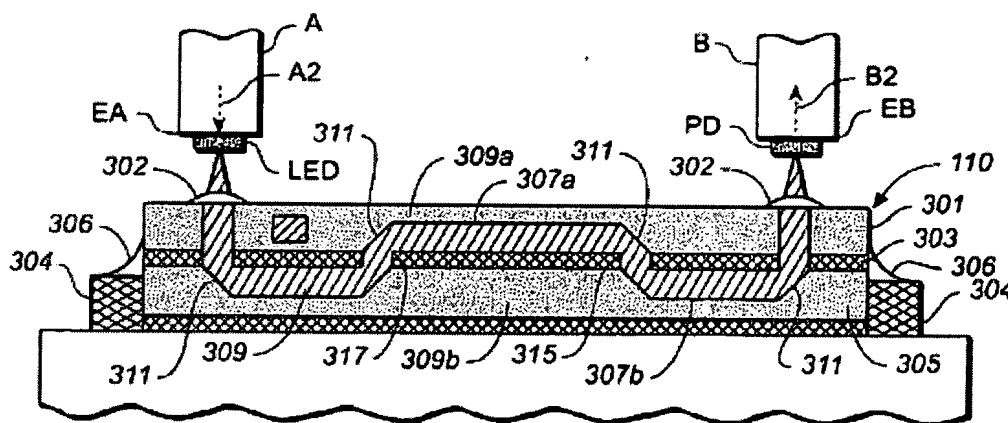


FIG. 3

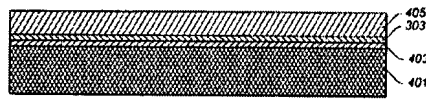


FIG. 4A

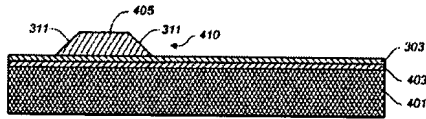


FIG. 4B

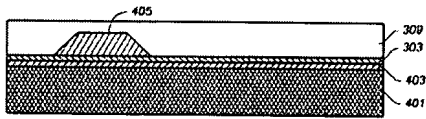


FIG. 4C

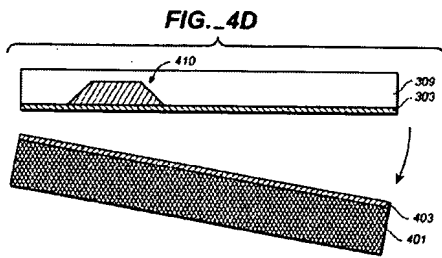


FIG. 4D

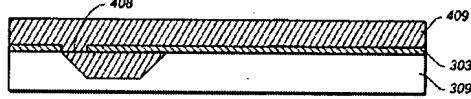


FIG. 4E

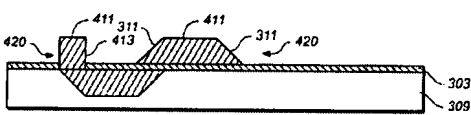


FIG. 4F

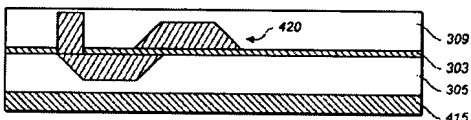


FIG. 4G

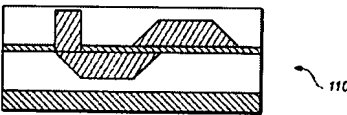


FIG. 4H

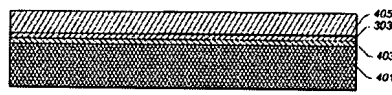


FIG. 5A

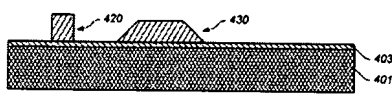


FIG. 5B

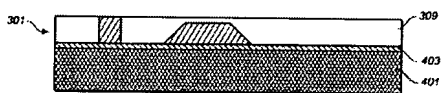


FIG. 5C

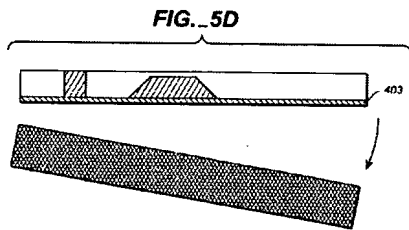


FIG. 5D

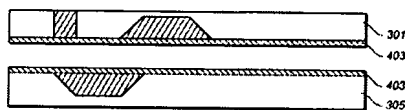


FIG. 5E

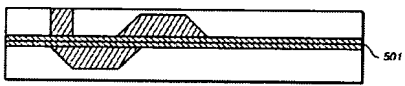


FIG. 5F

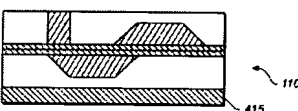
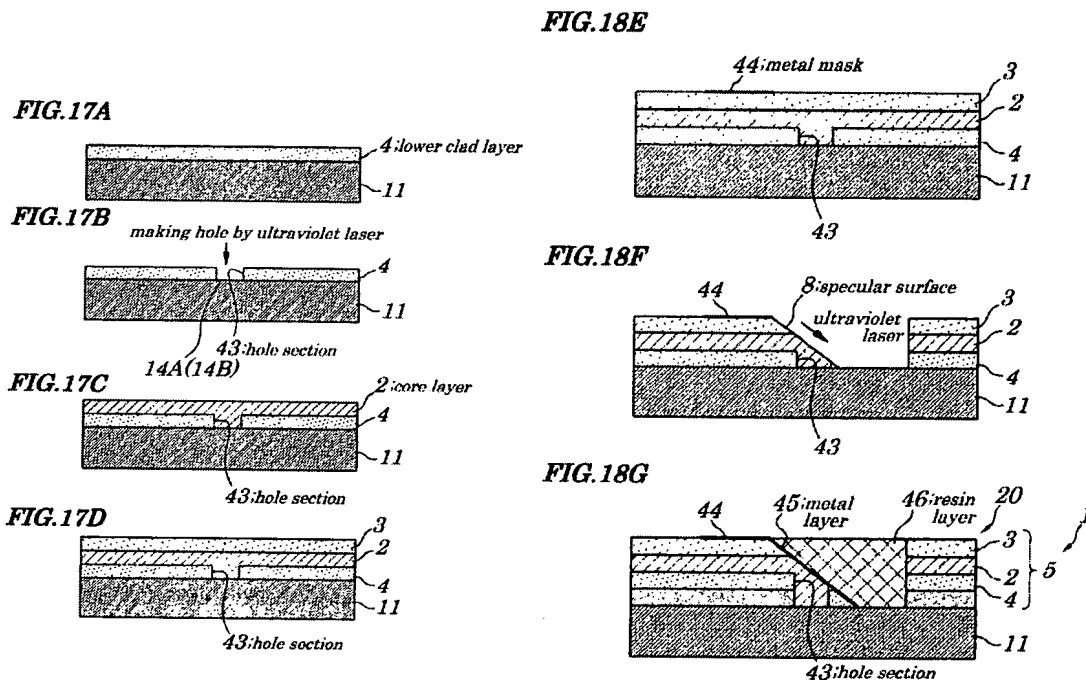
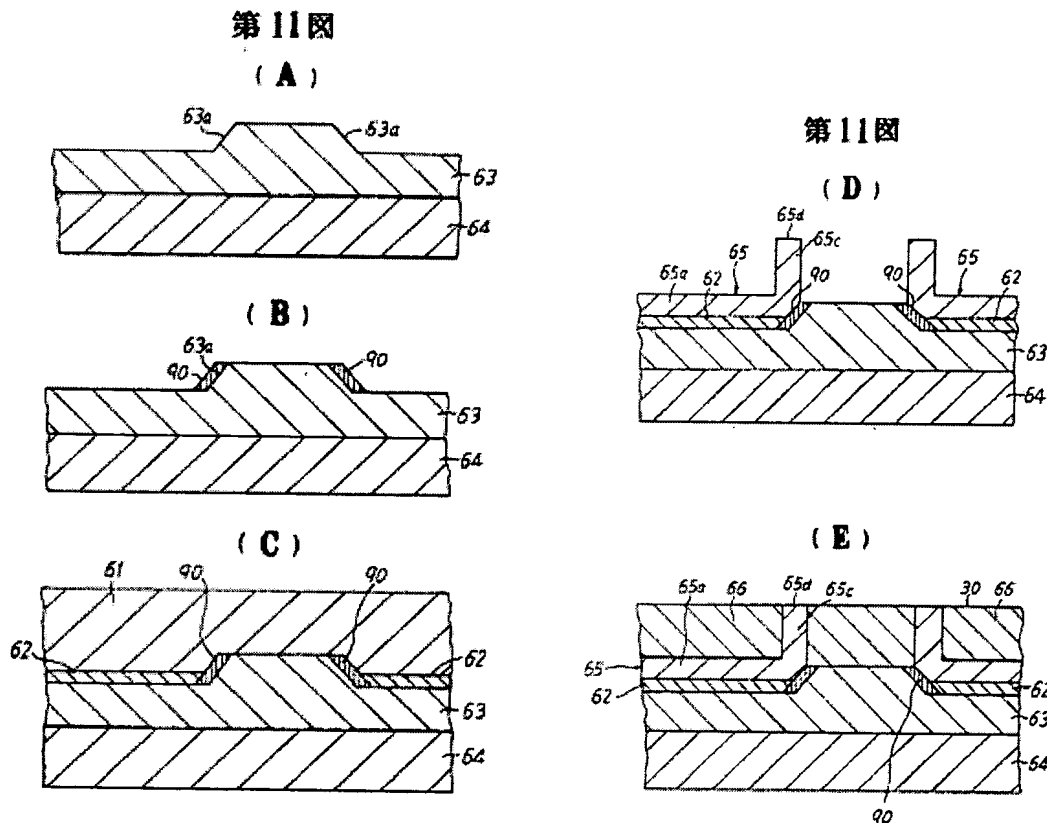


FIG. 5G

While Kikuchi et al (JP 2002-169042, US 6791675, US 2002/0064345) illustrates in figures 17a-17d and 18e-18g a method of forming an optical waveguide having a core perpendicular and core parallel section, the reference fails to teach forming and subsequently removing a first or a second temporary substrate; forming and subsequently removing a sacrificial layer; simultaneously forming a multichannel core; and cutting and separation into multichannel optical path changing devices.



While Uchida (JP 4-27904) teaches a method of making an optical waveguide device (see figures 11a-11e) comprising a multichannel core and L-shaped blocks (65), the reference fails to teach the steps involving the formation and removal of first and second temporary substrates and a sacrificial layer; forming a V-groove; or cutting and separation into multichannel optical path changing devices.



Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quyen P. Leung whose telephone number is (571) 272-8188. The examiner can normally be reached on normally M-F, 6:15 am - 2:45 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Quyen Leung
Primary Patent Examiner
Group Art Unit 2874

qpl